

January 8, 2003

**What is claimed is:**

1. A multicomponent system at least comprising

- 5           (I) at least one component comprising
- 10           (A) at least one oligomer and/or polymer containing on average at least two allophanate groups, carbamate groups or at least one carbamate group and at least one allophanate group,
- 15           (B) at least one oligomer and/or polymer containing on average at least two isocyanate-reactive functional groups,
- 20           (C) at least one partly or fully alkylated amino resin, and
- 25           (D) at least one compound containing on average at least two groups which can be activated with actinic radiation;

and

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- (II) at least one component comprising

- (E) at least one polyisocyanate,

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with the proviso that

- the equivalents ratio of isocyanate groups in component (II) to isocyanate-reactive functional groups in component (I) is from 0.2:1 to 1:0.2 and

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- the equivalents ratio of allophanate groups and/or carbamate groups in the oligomer and/or polymer (A) to the N-methylol ether groups or the N-methylol and N-methylol ether groups in the amino resin (C) is from 0.2:1 to 1:0.2.

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2. The multicomponent system as claimed in claim 1, wherein the equivalents ratio of

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- isocyanate groups + N-methylol ether groups or N-methylol and N-methylol ether groups (crosslinking agent groups) to

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- isocyanate-reactive functional groups + allophanate groups and/or carbamate groups (binder groups)

is from 0.2:1 to 1:0.2.

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3. The multicomponent system as claimed in claim 2, wherein the equivalents ratio of crosslinking agent groups to binder groups is from 0.25:1 to 1:0.25.

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4. The multicomponent system as claimed in any of claims 1 to 3, wherein the equivalents ratio of isocyanate groups in component (II) to isocyanate-

reactive functional groups in component (I) is from 0.3:1 to 1:0.3.

5. The multicomponent system as claimed in any of claims 1 to 4, wherein the equivalents ratio of allophanate groups and/or carbamate groups in the oligomer and/or polymer (A) to the N-methylol ether groups or the N-methylol and N-methylol ether groups in the amino resin (C) is from 0.3:1 to 1:0.3.
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6. The multicomponent system as claimed in any of claims 1 to 5, wherein the oligomers and polymers (A) and (B) are selected from the group consisting of random, alternating, and block, linear, branched, and comb polyaddition resins, polycondensation resins, and addition (co)polymers of ethylenically unsaturated monomers.
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7. The multicomponent system as claimed in claim 6, wherein the polyaddition resins and polycondensation resins are selected from the group consisting of polyesters, alkyds, polyurethanes, polylactones, polycarbonates, polyethers, epoxy resin-amine adducts, polyureas, polyamides and polyimides, and the addition (co)polymers are selected from the group consisting of (meth)acrylate (co)polymers and polyvinyl esters.
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8. The multicomponent system as claimed in any of claims 1 to 7, wherein the oligomer and/or polymer (A) comprise/comprises a minor amount of isocyanate-reactive functional groups.

9. The multicomponent system as claimed in any of claims 1 to 8, wherein the oligomer and/or polymer (B) comprise/comprises a minor amount of allophanate groups and/or carbamate groups.  
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10. The multicomponent system as claimed in claim 8 or 9, wherein the minor amount is up to 30 equivalent%, based on the allophanate groups and/or carbamate groups and isocyanate-reactive functional groups present in each case in the oligomer and/or polymer (A) or in the oligomer and/or polymer (B).  
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- 15 11. The multicomponent system as claimed in any of claims 1 to 10, wherein the isocyanate-reactive functional groups are selected from the group consisting of hydroxyl groups, thiol groups, and primary and secondary amino groups.  
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12. The multicomponent system as claimed in any of claims 1 to 11, wherein the amino resin (C) is alkylated with methyl groups and/or n-butyl groups.  
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13. The multicomponent system as claimed in any of claims 1 to 12, wherein the groups of the compound (D) which can be activated with actinic radiation contain at least one bond which can be activated with actinic radiation.  
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14. The multicomponent system as claimed in claim 13, wherein a bond which can be activated with actinic

radiation is a carbon-carbon double bond ("double bond") or carbon-carbon triple bond ("triple bond").

- 5        15. The multicomponent system as claimed in claim 14,  
wherein the groups which can be activated with  
actinic radiation are selected from the group  
consisting of (meth)acrylate, ethacrylate,  
crotonate, cinnamate, vinyl ether, vinyl ester,  
10        ethenylarylene, dicyclopentadienyl, norbornenyl,  
isoprenyl, isopropenyl, allyl or butenyl groups;  
ethenylarylene ether, dicyclopentadienyl ether,  
norbornenyl ether, isoprenyl ether, isopropenyl  
ether, allyl ether, and butenyl ether groups; and  
15        ethenylarylene ester, dicyclopentadienyl ester,  
norbornenyl ester, isoprenyl ester, isopropenyl  
ester, allyl ester, and butenyl ester groups.
- 20        16. The multicomponent system as claimed in claim 15,  
wherein the groups which can be activated with  
actinic radiation are acrylate groups.
- 25        17. The multicomponent system as claimed in any of  
claims 1 to 16, wherein the polyisocyanate (E)  
comprises blocked isocyanate groups in minor  
amounts.
- 30        18. The multicomponent system as claimed in any of  
claims 1 to 17, wherein the polyisocyanate (E)  
comprises at least one group which can be  
activated with actinic radiation.

19. The multicomponent system as claimed in any of claims 1 to 18, wherein component (I) contains

- from 5 to 30% by weight of (A),

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- from 5 to 30% by weight of (B),

- from 1 to 10% by weight of (C), and

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- from 20 to 70% by weight of (D),

based in each case on the solids of component (I).

20. The multicomponent system as claimed in any of

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claims 1 to 19, wherein component (II) contains, based on the solids, from 50 to 100% by weight of polyisocyanate (E).

21. The multicomponent system as claimed in any of

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claims 1 to 20, wherein component (I) and/or component (II) comprise/comprises at least one additive (F).

22. The use of a multicomponent system as claimed in

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any of claims 1 to 21 to prepare a mixture curable thermally and with actinic radiation ("triple-cure mixture").

23. The use as claimed in claim 22, wherein the

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triple-cure mixture is prepared by mixing at least one component (I) and at least one component (II) with one another and homogenizing the resulting mixture.

24. The use as claimed in claim 23, wherein component(s) (I) is (are) mixed with component(s) (II) in a weight ratio of from 20:1 to 2:1.

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25. The use as claimed in any of claims 22 to 24, wherein the triple-cure mixture serves to produce moldings and films and also as a coating material, adhesive, and sealant to produce coatings, adhesive films, and seals.

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26. The use as claimed in claim 25, wherein the moldings, films, coatings, adhesive films or seals serve for the wrapping, packaging, coating, impregnation, adhesive bonding or sealing of means of transport, including aircraft, boats, rail vehicles, vehicles driven by muscle power and motor vehicles, and parts thereof, the interior and exterior of buildings and parts thereof, furniture, doors, windows, and also, in the context of industrial coating, hollow glassware, coils, containers, and packaging, mechanical components, optical components, and electrical components, and white goods, including household appliances, boilers, and radiators.

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